

IN THE CLAIMS

Please amend the claims to read as follows:

Listing of Claims

1-4. (Canceled).

5. (Previously Presented) A disk drive, comprising:

a main unit having a tray on which a cartridge containing a disk is placed and a driving unit which loads or ejects said tray;

a positioning member which inserts said tray, as it is loaded into inside said main unit by said driving unit, now seating said cartridge into a positioning hole formed in said cartridge, and which accordingly positions said cartridge;

a cartridge urging member which is provided for said main unit and urges said cartridge against said tray from a direction perpendicular to a disk recording surface of said disk in a condition that said cartridge is positioned by said positioning member; and

a traverse holder which is provided for said main unit and has a disk rotating unit that rotates said disk, said traverse holder being rotatable such that said disk rotating unit moves proximal to, or distal from, said disk when said tray is inserted into said main unit, wherein:

said cartridge urging member presses said cartridge against said tray, operating cooperatively with said traverse holder which rotates such that said disk rotating unit moves proximal to said disk.

6. (Previously Presented) The disk drive of claim 5, further comprising:
a state detecting unit which detects a state detecting hole of said cartridge which expresses the states of said cartridge loaded into said main unit and said disk which is inside said cartridge;

a disk clamp member which clamps said disk together with said disk rotating unit.

7. (Previously Presented) The disk drive of claim 5 or 6, further comprising a raising/lowering unit which moves said disk rotating unit, which mounts and rotates said disk, close to said disk, wherein said cartridge urging member is driven by said raising/lowering unit.

8. (Previously Presented) The disk drive of claim 5 or 6, wherein said cartridge urging member urges said tray in a direction perpendicular to a tray transporting direction, after a naked disk has been loaded into said main unit and when said cartridge is not within said tray.

9. (Previously Presented) The disk drive of claim 5 or 6, further comprising at least one pair of cartridge urging members in a symmetrical arrangement with respect to a cartridge transporting direction, and wherein said cartridge urging members urge at about a central position in a cartridge depth direction.

10-13. (Canceled).

14. (Previously Presented) The disk drive of claim 5 or 6, comprising:
a mount detecting unit which detects setting of said cartridge to said tray at a right position with said tray ejected and which outputs a detection signal; and
a control section which receives said detection signal and outputs an operation instruction to said driving unit.

15. (Previously Presented) The disk drive of claim 14, comprising a detecting member which detects setting of a cartridge to a tray at the right position,
wherein said mount detecting unit responds to a detecting operation of said detecting member.

16. (Previously Presented) The disk drive of claim 15, comprising a cartridge holding unit which engages with an engagement receiving part of a cartridge in such a manner that said cartridge holding unit can be freely detached, positions and fixes a cartridge to a tray,
wherein said cartridge holding unit also serves as said detecting member.

17. (Previously Presented) The disk drive of claim 5, further comprising:
a control section which controls said driving unit based on a predetermined drive profile in which a speed is set differently in accordance with an elapsed time until the completion of traveling of said tray from the start of the traveling of said tray;
a detecting unit which detects the completion of loading and ejection by said driving unit;
and

a calculation section which measures a loading time and an ejection time of said disk by said driving unit based on a result of the detection performed by said detecting unit,

wherein said control section changes at least one of said speed and said elapsed time contained in said drive profile in accordance with a measured time obtained by said calculation section.

18. (Previously Presented) The disk drive of claim 17, further comprising a medium judging section which judges the shape, the size and the like of said disk, wherein said control section changes said drive profile by media in accordance with a result of the judgment obtained by said medium judging section.

19. (Original) The disk drive of claim 17, further comprising a measuring section which measures an inside temperature inside said drive, wherein said control section changes said drive profile by predetermined temperature in accordance with a result of the measurement regarding said inside temperature.

20. (Previously Presented) The disk drive of claim 17, 18 or 19, wherein an operation time of said driving unit is changed by said control section based on drive processing numbers which are assigned to said drive profile for every inflection point and calculation using a result of the measurement of a loading time and an ejection time calculated by said calculation section.

21. (Currently Amended) The disk drive of claim 20, wherein selected as an inflection point is a point at which a first disk engages with a said holding unit in said drive profile regarding loading of said first disk into said drive.

22. (Currently Amended) The disk drive of claim 20, wherein selected as an inflection point is a point at which a first disk engages with and gets disengaged from a said holding unit in said drive profile regarding ejection of said first disk from said drive.

23. (Previously Presented) The disk drive of claim 17, 18, or 19, wherein said calculation section sets up a variable as a major drive time in said drive profile, assigns drive processing numbers to said drive profile for every certain period of time, extends an operation time of said driving unit when said drive processing number upon detection of an end by said detecting unit is larger than an optimal number calculated in advance, but shortens the operation time of said driving unit when said drive processing number upon detection of an end by said detecting unit is smaller than said optimal number calculated in advance.

24. (Currently Amended) The disk drive of claim 23, wherein said calculation section assigns unique values to said drive processing numbers other than said optimal number, and when driving processing ends at said drive processing number, said calculation section ~~calculating means~~ adds said unique value unique to said drive processing number to the operation time of said driving unit.

25. (Previously Presented) The disk drive of claim 23, wherein said calculation section multiplies a difference between said drive processing number and said optimal number by a coefficient, and adds to the operation time of said driving unit.

26. (Previously Presented) The disk drive of claim 5 or 6, comprising:
a control section which controls said driving unit based on a predetermined drive profile in which a speed is set differently in accordance with an elapsed time until the completion of traveling of said tray from the start of the traveling of said tray; and
a medium judging section which judges the shape, the size and the like of said disk,
wherein said control section changes at least one of said speed and said elapsed time contained in said drive profile in accordance with a result of the judgment obtained by said medium judging section.

27. (Previously Presented) The disk drive of claim 5 or 6, further comprising:
a control section which controls said driving unit based on a predetermined drive profile in which a speed is set differently in accordance with an elapsed time until the completion of traveling of said tray from the start of the traveling of said tray; and
a measuring unit which measures an inside temperature inside said drive,
wherein said control section changes at least one of said speed and said elapsed time contained in said drive profile in accordance with a result of the measurement regarding said inside temperature.

28. (Previously Presented) The disk drive of claim 6, further comprising a positioning unit which engages with said positioning hole of said cartridge in such a manner that said positioning unit can be freely detached, wherein said positioning unit engages with said positioning hole of said cartridge in a condition that said tray has been loaded.

29. (Currently Amended) The disk drive of claim 6, further comprising:
another positioning hole of said cartridge; and
a positioning unit which is held by said main unit in such a manner that said positioning unit freely engages with and gets detached from said positioning hole and said other positioning hole of said cartridge, wherein:

said positioning unit engages with said positioning hole and said other positioning hole of said cartridge in a condition that said tray has been loaded, and

said main unit holds said driving unit, and holds said tray in such a manner that said tray is freely loaded and ejected, ~~wherein:~~

~~said positioning hole comprises two positioning holes.~~

30. (Previously Presented) The disk drive of claim 29, wherein said traverse holder has a traverse base through a damper member, and said disk rotating unit is held by said traverse base.

31. (Previously Presented) The disk drive of claim 29, wherein said positioning unit can engage with and get detached from said two positioning holes, one on the left-hand side and the other on the right-hand side, of said cartridge at one position at least.

32. (Previously Presented) The disk drive of claim 29, wherein said positioning unit is held in such a manner that the position of said positioning unit can be adjusted in the forward/backward direction relative to said main unit.

33. (Previously Presented) The disk drive of claim 29, further comprising a cam member which vertically drives said traverse holder and said positioning unit,

wherein said traverse holder and said positioning unit share a same cam mechanism which is disposed to said cam member.

34. (Previously Presented) The disk drive of claim 28, 29, 30, 31, 32 or 33, further comprising a guide member which guides vertical driving of said positioning unit, wherein said guide member has a tapering shape which tapers over multiple steps, and a gap between said positioning unit and said guide member becomes smallest during insertion of said positioning unit into said positioning hole of said cartridge.

35. (Previously Presented) The disk drive of claim 5, wherein said cartridge comprises a state detecting hole which expresses the state of said disk housed in said cartridge, a state detecting unit is disposed which is held by said main unit in such a manner that said state detecting unit can engage with and get detached from said state detecting hole, and said positioning member and said state detecting unit ascend in synchronization.

36. (Previously Presented) The disk drive of claim 28, 29, 30, 31, 33 or 35, further comprising a second driving unit which vertically drives said positioning member.

37. (Previously Presented) The disk drive of claim 36, wherein said second driving unit stops drive force immediately before engagement of said positioning member and said positioning hole of said cartridge completes.

38. (Previously Presented) The disk drive of claim 28, 29, 30, 31, or 33, further comprising a traveling restricting unit which restricts traveling of said state detecting unit after detachment of said state detecting unit from said state detecting hole of said cartridge.

39. (Previously Presented) The disk drive of claim 38, further comprising:
a second driving unit which vertically drives said positioning member,
wherein said second driving unit and said traveling restricting unit are integrated as one.

40. (Previously Presented) The disk drive of claim 28 or 29, further comprising a shutter opening/closing unit which opens a shutter of said cartridge at the time of loading, wherein said tray has a position reference for said cartridge in a direction in which said shutter opening/closing unit opens said shutter of said cartridge, and said positioning unit is disposed at one position at least.

41. (Previously Presented) The disk drive of claim 5 or 6, comprising a holding unit which holds said tray between a loading position and an ejection position in such a manner that said tray can be transported linearly.

42. (Previously Presented) The disk drive of claim 41, comprising an opening/closing unit which opens and closes a shutter of said cartridge, wherein said tray comprises a cartridge holding unit which holds said cartridge.

43. (Previously Presented) The disk drive of claim 42, wherein said opening/closing unit is disposed to said tray.

44. (Previously Presented) The disk drive of claim 41, wherein said holding unit comprises a shaft disposed in the forward/backward direction to said tray and a shaft bearing disposed to said main unit.

45. (Previously Presented) The disk drive of claim 41, wherein said holding unit comprises a shaft disposed in the forward/backward direction to said main unit and a shaft bearing disposed to said tray.

46. (Previously Presented) The disk drive of claim 5 or 6, comprising a cartridge holding unit which restricts movements of said cartridge relative to said tray in the loading/ejection direction and which engages with an engagement receiving part disposed to said cartridge in such

a manner that said cartridge holding unit can be detached from said engagement receiving part.

47. (Original) The disk drive of claim 46, wherein no wall surface which is perpendicular to a cartridge seating surface is disposed at the front edge of said tray in the loading/ejection direction.

48. (Previously Presented) The disk drive of claim 46, wherein said driving unit has a structure that as said tray as it is in the ejected state is pushed manually into inside said main unit, driving for loading is started, and force which engages said cartridge with said cartridge holding unit is smaller than force with which said tray is pushed manually into inside said main unit.

49. (Previously Presented) The disk drive of claim 46, wherein said cartridge holding unit has such a structure which flexibly engages with an engagement receiving part of said cartridge, a stopper is disposed at the rear edge of said tray in the loading direction of said cartridge, and during placing of said cartridge on said tray, a placing limit position for said cartridge restricted by said stopper roughly matches with a position at which said cartridge completes engaging with said cartridge holding unit.

50. (Previously Presented) The disk drive of claim 46, wherein said cartridge holding unit is disposed to said tray in such a manner that said cartridge holding unit can sink in an engagement receiving part of said cartridge which has a concave shape.

51. (Previously Presented) The disk drive of claim 46, wherein there are engagement receiving parts on the left-hand side and the right-hand side to an axial line of the loading or ejection direction passing through the center of gravity of said cartridge.

52. (Previously Presented) The disk drive of claim 46, wherein said engagement receiving part is located on one of the left-hand side and the right-hand side to an axial line of the loading or ejection direction passing through the center of gravity of said tray, or is located on said axial line.

53. (Previously Presented) The disk drive of claim 46, wherein said tray comprises a guide member which restricts movements of said cartridge in a direction perpendicular to the loading or ejection direction of said tray.

54. (Currently Amended) The disk drive of claim 46, wherein in a condition that an engaging part of said cartridge holding unit is about to engage with said cartridge but is not in engagement, in order to prevent loading of said tray into said main unit, an opening portion disposed in a front surface of said main unit for loading and ejection of said tray interferes with said cartridge holding unit ~~means~~.

55. (Previously Presented) The disk drive of claim 46, wherein said cartridge holding unit comprises, on said tray, a revolution shaft which revolves in a direction perpendicular to the loading and ejection direction of said tray and a holding member which has an engaging part

which is axially supported by said revolution shaft and engages with said engagement receiving part, and said engaging part of said cartridge holding unit is pre-loaded in a direction of engagement with said engagement receiving part of said cartridge.

56. (Previously Presented) The disk drive of claim 46, wherein said cartridge holding unit comprises an elastic member which is flexibly deformed in a direction perpendicular to the loading and ejection direction of said tray, and the front edge of said elastic member is deformed through plastic deformation into a projecting shape which sinks into said engagement receiving part of said cartridge which has a concave shape, or an engaging member having said projecting shape is integrated with said elastic member at the front edge of said elastic member.

57. (Previously Presented) The disk drive of claim 46, wherein in an engaging part of said cartridge holding unit which sinks into said engagement receiving part of said cartridge which has a concave shape, a roller having a cylindrical or approximately spherical shape is disposed which rotates along a surface of said cartridge and which comprises a rotation shaft in a direction perpendicular to the loading and ejection direction of said tray.

58. (Previously Presented) A loading method for the disk drive of claim 5 comprising:
a first step during which said tray seating said cartridge is loaded into said main unit by said driving unit;

a second step during which a positioning member positions said cartridge as it is loaded into said main unit;

a third step during which state detecting means detects the state of said cartridge;
a fourth step during which said disk is held by cooperation of a disk rotating unit and a disk clamp member; and
a fifth step during which said cartridge urging member urges said cartridge against said tray,
wherein after said second step and said third step are executed following said first step, said fourth step and said fifth step are executed.

59. (Previously Presented) The loading method for the disk drive of claim 58, wherein said disk drive comprises:

a mount detecting unit which detects that said cartridge is arranged at a right position on said tray with said tray ejected, and which outputs a detection signal; and

a control section which receives said detection signal and outputs an operation instruction to said driving unit.

60. (Previously Presented) The loading method for the disk drive of claim 59, wherein said disk drive comprises a detecting member which detects that said cartridge is arranged at a right position on said tray,

wherein said mount detecting unit responds to a detecting operation performed by said detecting member.

61. (Currently Amended) The loading method for the disk drive of claim 60, wherein

said disk drive comprises a cartridge holding unit which engages with an ~~said~~ engagement receiving part disposed to ~~of~~ said cartridge in such a manner that said cartridge holding unit can be freely detached, and which fixes and positions said cartridge to said tray, and
said cartridge holding unit also serves as a detecting member.

62. (Previously Presented) The loading method for the disk drive of claim 58, wherein said disk drive comprises:

a control section which controls said driving unit based on a predetermined drive profile in which a speed is set differently in accordance with an elapsed time until the completion of traveling of said tray from the start of the traveling of said tray;

a detecting section which detects the completion of loading and ejection by said driving unit; and

a calculation section which measures a loading time and an ejection time of said disk by said driving unit based on a result of the detection performed by said detecting section, and

said control section changes at least one of said speed and said elapsed time contained in said drive profile in accordance with a measured time obtained by said calculation section.

63. (Previously Presented) The disk drive of claim 35, further comprising a traveling restricting unit which restricts traveling of said state detecting unit after detachment of said state detecting unit from said state detecting hole of said cartridge.